

ATLB-2110: SMALL ENGINES & CONCRETE SAWS

Cuyahoga Community College

Viewing: ATLB-2110 : Small Engines & Concrete Saws

Board of Trustees:

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Academic Term:

Spring 2019

Subject Code

ATLB - AIT-Construct/Hazard Material

Course Number:

2110

Title:

Small Engines & Concrete Saws

Catalog Description:

Start-up procedures and safety requirements of small engine machines and gas powered saws. Trenching equipment, chain saw safety and 2-cycle and 4-cycle engines will be covered.

Credit Hour(s):

2

Lecture Hour(s):

2

Requisites

Prerequisite and Corequisite

Departmental approval: admission to Laborer's apprenticeship program.

Outcomes

Course Outcome(s):

1. Discuss the operation and safety requirements of soil compactors including existing soil conditions and maintenance of the equipment.

Objective(s):

1. Identify the types of soil compactors and assess the soil types and conditions to select the proper compacting equipment.
2. Describe the types of compacting equipment and differentiate between vibratory plate, jumping jack, and roller compactors.
3. Demonstrate the ability to operate various types of soil compactors and explain the differences between two- and four-cycle engines.
4. Maintain the compactors and properly lubricate the engines and identify and replace worn parts including belts and combustion components.
5. Trouble- shoot equipment and identify solutions.
6. Identify specific OSHA standards that address safe operation of the equipment including personal protective equipment.

Course Outcome(s):

2. Describe the uses and operation of the various chain saws and demonstrate the proper application of set-up and maintenance procedure.

Objective(s):

1. Maintain chain saws and identify worn parts including chain, bars and sprockets.
2. Employ proper safety regulations for chain saw operation including personal protective equipment, housekeeping, and overhead hazard recognition.
3. List the types of chain saws and differentiate by size.

4. Describe the operation of the chain saw and identify the major operating parts.
5. Operate the chain saw to perform various tasks including tree removal and timber and logging cutting.

Course Outcome(s):

3. Discuss the types of concrete cutting saws, the operation of each, and the set-up procedures.

Objective(s):

1. Differentiate between various types of concrete saws and discuss the purposes for cutting concrete.
2. Establish correct cutting lines on concrete slabs including proper depth and spacing.
3. Discuss the need for control joints in concrete slabs.
4. Describe the types of concrete cutting blades and discuss various dust control procedures.
5. Describe the differences between dry and wet cutting techniques.
6. Apply safe work practices.

Course Outcome(s):

4. Describe the operation and use of various types of portable electrical power equipment including saws, drill motors, and generators.

Objective(s):

1. List and describe the types of electric saws, including circular saws, sawsalls, and jigsaws and discuss the respective uses of each.
2. Identify the different types of saw blades and explain the differences.
3. List the various kinds of drill motors, including rotary and hammer drill and core drills.
4. Discuss the operation of standard generators and identify safety concerns for application.

Methods of Evaluation:

1. Quizzes
2. Tests
3. Class participation

Course Content Outline:

1. Soil compactors
 - a. Types
 - i. Vibratory plate
 - ii. Jumping jack
 - iii. Walk-behind roller
 - b. Application
 - i. Soil compaction
 - ii. Footing trenches
 - iii. Slab preparation
 - iv. Pavement
 - v. Back fill
 - c. Operation
 - i. Start-up
 - ii. Shut down
 - iii. Hazard recognition
 - d. Maintenance
 - i. Lubrication
 - ii. Fuel selection
 - iii. Filter
 - iv. Guard inspection
 - e. Trouble shooting
 - i. Slow/no start
 - ii. Rough operation
 - iii. Fuel mixture

- iv. Belt inspection
 - v. Combustion components
 - f. Safety
 - i. Personal protection equipment
 - ii. Pinch points
 - iii. Ventilation
 - iv. Underground utilities
 - v. Cave-in/trench collapse
- 2. Chain saws
 - a. Types
 - i. Size
 - ii. Application
 - b. Operation
 - i. Inspection
 - ii. Start up
 - iii. Work practices
 - iv. Shut down procedures
 - c. Tasks
 - i. Site cleaning
 - ii. Logging
 - iii. Preparation for felling
 - iv. Shutdown procedures
 - d. Maintenance
 - i. Chain sharpening
 - ii. Inspection
 - iii. Filters
 - iv. Cleaning
 - v. Lubrication
 - vi. Sprockets
 - vii. Tension
 - e. Safety
 - i. Overhead hazards
 - ii. Retreat plan
 - iii. Chain brake
 - iv. Positioning
 - v. OSHA standards
- 3. Concrete cutting saws
 - a. Types
 - i. Portable multi-purpose
 - ii. Walk behind
 - iii. Manual
 - b. Cutting lines
 - i. Layout
 - ii. Spacing
 - iii. Depth
 - c. Cutting purpose
 - i. Cracking control
 - ii. Demolition
 - iii. Concrete shrinkage
 - iv. Ground movement
 - d. Blade types
 - i. Diamond
 - ii. Wet
 - iii. Dry
 - iv. Cost
 - v. Dry vs. wet cutting
 - vi. Safety
- 4. Portable electric power equipment

- a. Types
 - i. Saws
 - ii. Drill motors
 - iii. Generators
 - iv. Grinders
- b. Blades
 - i. Ripping
 - ii. Cross cutting
 - iii. Trim
 - iv. Combination
- c. Drill motors
 - i. Rotary
 - ii. Hammer
 - iii. Core
 - iv. Drill bits
- d. Generators
 - i. Operation
 - ii. Safety concerns

Resources

Wacker Corporation. *Soil Compaction*. Menomonee Falls, WI: Wacker Corporation, 1999.

LIUNA Training and Education Fund. *Small Engine Operation and Maintenance*. Pomfret Center, CN: LIUNA Training and Education Fund Pomfret Center, Connecticut, 2011.

LIUNA Training and Education Fund. *Concrete Coring and Drilling*. Pomfret Center, CN: LIUNA Training and Education Fund, 2007.

Resources Other

1. "Power Equipment Operation & Maintenance" <http://www.technet.unsw.edu.au/tohss/web%20files/drillpress1.pdf>
2. "Chain Saw Safety: No Tricks" <http://www.ag.ndsu.edu/pubs/ageng/safety/ae1025w.htm>

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